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09/966,704	09/28/2001	Tetsujiro Kondo	450100-03501	6412

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NEW YORK, NY 10151

EXAMINER
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JONES III, CLYDE H

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 05/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/966,704	<b>Applicant(s)</b> KONDO ET AL.	
	<b>Examiner</b> Clyde H. Jones III	<b>Art Unit</b> 2623	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 2/15/2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

In response to applicant's arguments on pages 10-14 of the 2/15/2006 remarks, the newly added limitations are met by the Hennes and Cohen-Solal references and further by the Howell, Needham, Schwartzberg and Sprout references as described below.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 7-13, 16, 18, 21, 22, 23 and 24, rejected under 35 U.S.C. 103(a) as being unpatentable over Hennes (US 6,665,985 B1) in view of Cohen-Solal (US 6,873,710 B1).

Regarding claims 1, 21 and 23, the following limitations are met by Hennes –

“An audience response determination apparatus for determining an audience response” (show control system 500 - fig. 5A & 5B and theater assembly 100 – fig. 4;

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col. 6, lines 37-38); and corresponding method; and “data recording medium recording a processing program” (col. 6, lines 64-67; col. 1, line 67 - col. 2, line 1; col. 6, lines 27-33):

“overall state detection means for detecting the overall state of an audience” (Hennes discloses control system 500 – fig. 5A & 5B using two types of sensors, motion-sensors, and microphones (which both read on the “overall state detection means”) to detect general audience motion, and audience sounds (which reads on “the overall state of an audience”); col. 6, lines 45-49);

“individual state detection means for detecting the individual states of the members of the audience” (Hennes further discloses the control system 500 – fig. 5A & 5B using motion-sensors/sound-sensors (which read on the “individual state detection means”) to detect motion/sound (which reads on the “individual states”) of groups of individuals in the audience (which reads on “members”); col. 6, lines 37-45); and

“determination means for determining the audience response on the basis of information detected by said overall state detection means” (col. 6, lines 45-59; in which show control device 520 – fig. 5A & 5B reads on “determination means”) and “by said individual state detection means” (col. 6, lines 37-45) (Hennes’ sensors 510 provide the information/data from which 520 derive the “audience response”, in which “audience response” reads on the audience’s perception of reality which is derived from the audience’s interaction and movements/sounds within the environment based on the special effects (stimuli) produced by the theater sound/visual projections, e.g., a child audience member “sees” a dolphin, gets immersed in the environment, starts jumping

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around and yelling in excitement, and the control system determines/senses this excitement (increased motion/sound) based on information from the sensors; col. 1, lines 43-65 & col. 7, line 65 – col. 8, line 2),

wherein the determination means (show control device 520) for determining the audience response comprises an audience state determination unit (reads on 520 extracting the motion/sound, i.e., state information, from the sensors 510, e.g., 520 determines if the audience is still and silent or loud and active; col. 6, lines 37-45; col. 1, lines 43-65).

However, Hennes fails to specifically disclose estimating the audience response based upon identifying values of respective determination signals and auxiliary information.

In an analogous art, Cohen-Solal teaches estimating the audience response based upon identifying values of respective determination signals (A/V capture information, e.g., turn-over rate, size, facial expressions, etc.) and auxiliary information (offline statistics, e.g., historical or demographic information) for providing a feedback mechanism to effectively target the audience (col. 4, lines 21-24) and to modify a presentation to a large audience based on real-time analysis of the audience (col. 8, lines 34-35; col. 6, lines 14-16) (fig. 2; col. 3, lines 18-27 & 35-60; col. 4, lines 7-11, 45-47 & 51-65; col. 6, line 61-67; col. 7, lines 20-29; col. 5, lines 18-22; col. 6, lines 43-49).

It would have been obvious at the time of the Applicant's invention to modify the system of Hennes to include estimating the audience response based upon identifying values of respective determination signals and auxiliary information as taught by Cohen-

Solal for the added advantages of increasing the effectiveness of the system by dynamically targeting content to audience members based on relevant characteristics, e.g., demographics and for increasing revenue generating opportunities by providing targeted ads (col. 4, lines 21-24; col. 3, lines 34-43; col. 3, line 62-col. 4, line 5).

Regarding claims 2 and 10, Hennes discloses motion-sensors to detect general (entire) audience motion and position (col. 6, lines 45-47), however fails to disclose “takes an image of the entire audience” and “based on the image taken”.

Cohen-Solal discloses capturing images to determine the count/size of the audience (col. 3, lines 18-21; col. 4, lines 59-60; col. 6, lines 27-45) and determine the turnover rate (col. 6, lines 46-60).

It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention to modify the system of Hennes to include the limitations “takes an image of the entire audience” and “based on the image taken” as taught by Cohen-Solal for the same advantages as discussed above.

Regarding claim 3, Hennes in view of Cohen-Solal teach the “overall state detection means collects sounds uttered by the entire audience and detects the overall state of the audience based on the sounds thus collected” which reads on control system detecting audience sounds throughout the audience area (col. 6, lines 45-48).

Regarding claims 7, 18, 22 and 24 the following limitations are met by Hennes –

"A playback output control system for controlling the output from playback means for the playback and output of data to be seen or heard by an audience" (playback devices 530/projectors 350 and sound system 400 read on "playback means"; show control system 500 - fig. 5A & 5B and theater assembly 100 - fig. 4) and corresponding method; and "data recording medium recording a processing program" (col. 6, lines 64-67; col. 1, line 67 - col. 2, line 1; col. 6, lines 27-33):

"overall state detection means for detecting an overall state of said audience" Hennes discloses control system 500 - fig. 5A & 5B using two types of sensors, motion-sensors, and microphones (which both read on the "overall state detection means") to detect general audience motion, and audience sounds (which reads on "the overall state of an audience"); col. 6, lines 45-49);

"individual state detection means for detecting individual states of the members of said audience" (Hennes further discloses the control system 500 - fig. 5A & 5B using motion-sensors/sound-sensors (which read on the "individual state detection means" ) to detect motion/sound (which reads on the "individual states") of groups of individuals in the audience (which reads on "members"); col. 6, lines 37-45);

"determination means for determining an audience response on the basis of the information detected by said overall state detection means" (col. 6, lines 45-49; in which show control device 520 - fig. 5A & 5B reads on "determination means") and "by said individual state detection means" (col. 6, lines 41-45) and "by said individual state detection means" (col. 6, lines 37-45) (Hennes' sensors 510 provide the information/data from which 520 derive the "audience response", in which "audience

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response reads on the audience's perception of reality which effects the audience's interaction and movement within the environment based on the special effects (stimuli) produced by the theater sound/visual projections, e.g., a child audience member "sees" a dolphin, gets immersed in the environment, starts jumping around and yelling in excitement, and the show control device 520 determines this excitement (increased movement/sound) based on information from the sensors; col. 1, lines 43-65 & col. 7, line 65 – col. 8, line 2); and

"control means for controlling the operation of said playback means based on the audience response determined by said determination means" (show control device 520 reads on "control means"; col. 6, lines 52-58; col. 7, lines 1-19),

wherein the determination means (show control device 520) for determining the audience response comprises an audience state determination unit (reads on 520 extracting the motion/sound, i.e., state information, from the sensors 510, e.g., 520 determines if the audience is still and silent or loud and active; col. 6, lines 37-45; col. 1, lines 43-65).

However, Hennes fails to specifically disclose estimating the audience response based upon identifying values of respective determination signals and auxiliary information.

In an analogous art, Cohen-Solal teaches estimating the audience response based upon identifying values of respective determination signals (A/V capture information, e.g., turn-over rate, size, facial expressions, etc.) and auxiliary information (offline statistics, e.g., historical or demographic information input into the system) for



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providing a feedback mechanism to effectively target the audience (col. 4, lines 21-24) and to modify a presentation to a large audience based on real-time analysis of the audience (col. 8, lines 34-35; col. 6, lines 14-16) (fig. 2; col. 3, lines 18-27 & 35-60; col. 4, lines 7-11, 45-47 & 51-65; col. 6, line 61-67; col. 7, lines 20-29; col. 5, lines 18-22; col. 6, lines 43-49).

It would have been obvious at the time of the Applicant's invention to modify the system of Hennes to include estimating the audience response based upon identifying values of respective determination signals and auxiliary information as taught by Cohen-Solal for the added advantages of increasing the effectiveness of the system by dynamically targeting content to audience members based on relevant characteristics, e.g., demographics and for increasing revenue generating opportunities by providing targeted ads (col. 4, lines 21-24; col. 3, lines 34-43; col. 3, line 62-col. 4, line 5).

Regarding claim 8, Hennes, in view of Cohen-Solal teach the "control means selects, on the basis of said audience response determined by said determination means, data to be played back by said playback means" (col. 6, lines 52-58; col. 7, lines 1-19).

Regarding claim 9, Hennes in view of Cohen-Solal teach the "control means controls, on the basis of said audience response determined by said determination means, signal processing on the data played back by said playback means" (signal processor 540; col. 7, lines 1-5).

Regarding claims 11 and 13, Hennes in view of Cohen-Solal teach a reduction means (show control device 520) for reducing the effect (motion effects, e.g., horizontal movement and physical sensations) of sound data played back and output by said playback means (sound system 400), wherein overall state detection means detects the overall state of the audience by reducing the effect of said sound data (reads on control system 500 receiving/detecting the audience motion/sound when the control device 520 pans the sound from “left” to “right” or lowers the frequency of the sound to induce a physical sensation and reaction in the audience; col. 7, line 46 – col. 8, line 2).

Regarding claim 12, Hennes in view of Cohen-Solal teach the “overall state detection means detects the overall state of said audience by collecting sounds emitted by the entire audience” (reads on microphone sensors 510 receiving/detecting audience sounds throughout the audience area; col. 6, lines 45-59).

Regarding claim 16, Hennes fails to disclose the limitation “a filter which passes a predetermined audio band” and “based on the sound passed through said filter”.

The examiner takes Official Notice that it is well known in the art to use bandpass filters when processing targeted input sound frequencies in the midst of extraneous unwanted sounds and/or noise, e.g., air conditioning noise, because filtering makes subsequent analyses of the targeted sound more accurate by extracting the targeted sound while attenuating the noise signals. It would be obvious to one of ordinary skill in

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the art at the time the invention was made to modify the system of Hennes to include the limitations "a filter which passes a predetermined audio band" and "based on the sound passed through said filter" to reject sound frequencies in the theater that could not logically correspond to audience sound because they are above/below the desired frequency range of audience sound, e.g., very high frequency audio played back by the theater sound system or low bass frequencies played back by the theater sound system, and/or low frequency air-conditioning noise, etc.

4. Claims 4 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennes (US 6,665,985 B1) in view of Cohen-Solal (US 6,873,710 B1) as applied to claims 1 and 7 above, and further in view of Sprout et al. (US 6,409,599 B1).

Regarding claims 4 and 17, Hennes in view of Cohen-Solal fail to disclose the individual state detection means detects a load applied to each of the audience's seats.

In an analogous art Sprout discloses using seats responsive to a users physical movements (reads on "load") for enhancing the immersive experience (col. 4, lines 37-47).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Hennes in view of Cohen-Solal to include the further limitation "detects a load applied to each of the audience's seats" as taught

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by Sprout for enabling the audience to comfortably sit during the performance and still enhance the immersive experience (Sprout - col. 4, lines 37-40).

4. Claims 5, 6, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennes (US 6,665,985 B1) in view of Cohen-Solal (US 6,873,710 B1) as applied to claims 1 and 7 above, and further in view of Howell (US 6,600,477 B1).

Regarding claims 5 and 19, Hennes in view of Cohen-Solal teach motion-sensors for detecting individual members of the audience (col. 6, lines 37-39), however fail to disclose the individual state detection means detects a stepping force as recited in the claims.

In an analogous art Howell, discloses using a pressure sensitive pad 30, - fig. 6 & 7, to detect motion and position information provided by both feet of a standing user (col. 7, lines 20-25 & col. 7, lines 54-56) for detecting larger movements of the body (col. 7, lines 27-31).

It would have been obvious to one of ordinary skill in the art to modify the system of Hennes in view of Cohen-Solal to include the limitation "detects a stepping force" as taught by Howell for detecting larger movements of the body of audience members (Howell - col. 7, lines 27-31).

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Regarding claims 6 and 20, Hennes in view of Cohen-Solal and further in view of Howell disclose the further limitations:

“detecting a stepping force provided by the left foot of each member of said audience; and

second stepping force detection means for detecting a stepping force provided by the right foot of each member of said audience” (Howell - col. 7, lines 54-61; in which motion and position information is recorded for each foot for use in applications, e.g., determining the direction a user is standing).

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hennes (US 6,665,985 B1) in view of Cohen-Solal (US 6,873,710 B1) as applied to claims 1 and 7 above and further in view of Needham (US 5,726,701).

Regarding claim 14, Hennes in view of Cohen-Solal fail to disclose the limitation “comparing the collected sounds with a reference sound level”.

In an analogous art Needham discloses determining an audience response (“state”) by comparing collected audience signal to a threshold (“reference sound level”) for determining the response of the audience (col. 8, lines 14-38; col. 6, lines 9-13);

It would have been obvious to one of ordinary skill in the art at the time the Applicant’s invention was made to modify the system of Hennes in view of Cohen-Solal to include the further limitation “comparing the collected sounds with a reference sound

level” as taught by Needham for setting the minimum amplitude a collected signal may have to affect a desired effect.

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hennes (US 6,665,985 B1) in view of Cohen-Solal (US 6,873,710 B1) and Needham (US 5,726,701) as applied to claim 14 above and further in view of Schwartzberg (US 2,593,204).

Regarding claim 15 Hennes in view of Cohen-Solal and Needham teach varying the threshold based on empirical results to reject background noise (Needham - col. 8, lines 64-67) however, they fail to disclose the further limitation “on the basis of the audience size”.

In an analogous art Schwartzberg discloses varying the sensitivity of an audience input microphone based on the size of the audience for obtaining an accurate measure of the sound level based on the fullness of the auditorium (col. 1, line 53 – col. 2, line 20).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Hennes in view of Cohen-Solal and Needham to include the limitation “on the basis of the audience size” as taught by Schwartzberg for accurately measuring the sound level of an audience based on the degree of audience member density.

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11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clyde H. Jones III whose telephone number is 571-272-5946. The examiner can normally be reached on 9-5:30 p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Grant can be reached on 571-272-7294. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

***Note to Applicant***

Art Units 2611, 2614 and 2617 have changed to 2623. Please make all future correspondence indicate the new designation 2623.

CJ

  
**CHRISTOPHER GRANT  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800**